



REMARKS

Claims 1- 20 remain pending in this application with claim 1 being amended by this response.

Rejection of Claims 1, 2, 19 and 20 under 35 U.S.C. 103(a)

Claims 1, 2, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pearlstein et al. (US 6,668,018).

The present claimed invention recites a process for the blockwise coding of digital video images. Each block is assigned a specified resolution, which is dependent on a zone in which this block is located. An image which includes at least two zones to which different resolutions are assigned is characterized in that the mixed blocks straddling two zones of different resolutions are detected. The zone corresponding to each pixel of these mixed blocks is determined so as to construct mixed blocks by allocating the resolution of this specified zone to this pixel to get constructed mixed blocks and to code the constructed mixed blocks.

Pearlstein et al. neither disclose nor suggest that “mixed blocks straddling two zones of different resolutions are detected, and the zone corresponding to each pixel of these mixed blocks is determined so as to construct mixed blocks by allocating the resolution of this specified zone to this pixel to get constructed mixed blocks and to code said constructed mixed blocks” as claimed in claim 1 of the present invention.

The present claimed invention discloses a blockwise coding process, for coding the objects of interest in the image with a higher resolution. A characteristic of our invention is the detection of mixed blocks, blocks belonging to sections of different resolutions, and the construction of mixed blocks by allocating different resolutions to the pixels it contains. This process specifies a calculation/construction of a block having more than one resolution.

Pearlstein et al. disclose a method and apparatus for a decoder that “decodes some portions of a frame at a higher resolution than others [and] can be described as a hybrid downsampling decoder” (Col. 4, lines 43-45). The hybrid downsampling decoder identifies constant block regions within the frame. Blocks containing portions of an image at or near the borders (edges of the block) are encoded at a high resolution while all other blocks are downsampled at a low resolution. Unlike the present claimed invention, Pearlstein et al. are not concerned with the construction of a single block with high and low resolution. Rather, the decoder of Pearlstein et al. “decodes portions of frames at one, e.g., a reduced, resolution and other portions at increased, e.g., full, resolution along at least one of two picture sampling axes” (Col. 4, lines 20-23). Pearlstein et al. do not attribute different resolutions to the pixels of one block for the coding of the block. Therefore, Pearlstein et al. neither disclose nor suggest that “mixed blocks straddling two zones of different resolutions are detected, and the zone corresponding to each pixel of these mixed blocks is determined so as to construct mixed blocks by allocating the resolution of this specified zone to this pixel to get constructed mixed blocks and to code said constructed mixed blocks” as claimed in claim 1 of the present invention.

As claims 2, 19 and 20 are dependant on Independent claim 1 it is respectfully submitted that these claims are allowable for the same reasons discussed above regarding claim 1. In view of the above remarks it is respectfully submitted that claims 2, 19 and 20 are also allowable.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Pearlstein et al. showing the above discussed features. It is thus further respectfully submitted that claims 1-2 and 19-20 are patentable over Pearlstein et al. and that this rejection is satisfied and should be withdrawn.

**Rejection of Claims 3-10 under 35 U.S.C. 103(a)**

Claims 3-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pearlstein et al. (US 6,668,018) in view of Nilsson (US 5,973,739).

Nilsson, similarly to Pearlstein et al., neither disclose nor suggest that “mixed blocks straddling two zones of different resolutions are detected, and the zone corresponding to each pixel of these mixed blocks is determined so as to construct mixed blocks by allocating the resolution of this specified zone to this pixel to get constructed mixed blocks and to code said constructed mixed blocks” as claimed in claim 1 of the present invention.

The present claimed invention discloses a blockwise coding process, for coding the objects of interest in the image with a higher resolution. A characteristic of our invention is the detection of mixed blocks, blocks belonging to sections of different resolutions, and the construction of mixed blocks by allocating different resolutions to the pixels it contains. This process specifies a calculation/construction of a block having more than one resolution.

Nilsson, discloses a method for providing low and high resolution signals. The method uses the prediction error of the lower resolution predictive encoder as a prediction error estimate to the higher resolution encoder. The whole image is coded according to these two resolutions. Nilsson, as shown in the cited Figure 4, merely discloses downsampling or upsampling, i.e. low resolution or high resolution, for an entire block. This is unlike the present invention that detects blocks straddling two zones of different resolutions and allocates the resolution for each pixel in that block. Therefore, Nilsson, with Pearlstein et al., neither disclose nor suggest that “mixed blocks straddling two zones of different resolutions are detected, and the zone corresponding to each pixel of these mixed blocks is determined so as to construct mixed blocks by allocating the resolution of this specified zone to this pixel to get constructed mixed blocks and to code said constructed mixed blocks” as claimed in claim 1 of the present invention.

As claims 3-10 are dependent on Independent claim 1 it is respectfully submitted that these claims are allowable for the same reasons as mentioned above regarding claim 1. In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Nilsson and Pearlstein et al. when taken alone or in combination showing the above discussed features. It is thus further respectfully submitted that claims 3-10 are patentable over Pearlstein et al. and Nilssen and that this rejection is satisfied and should be withdrawn.

Rejection of Claims 11-17 under 35 U.S.C. 103(a)

Claims 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pearlstein et al. (US 6,668,018) in view of Hartung et al. (US 5,481,308).

Hartung et al., similarly to Pearlstein et al., neither disclose nor suggest that “mixed blocks straddling two zones of different resolutions are detected, and the zone corresponding to each pixel of these mixed blocks is determined so as to construct mixed blocks by allocating the resolution of this specified zone to this pixel to get constructed mixed blocks and to code said constructed mixed blocks” as claimed in claim 1 of the present invention.

The present claimed invention discloses a blockwise coding process, for coding the objects of interest in the image with a higher resolution. A characteristic of our invention is the detection of mixed blocks, blocks belonging to sections of different resolutions, and the construction of mixed blocks by allocating different resolutions to the pixels it contains. This process specifies a calculation/construction of a block having more than one resolution.

Hartung et al. describe sub-band coding. The Examiner contends that Hartung et al. disclose mixed blocks with two adjacent zones (see Fig.9 and col. 9, lines 62-67). Hartung et al. describe sub-bands 1 to 7 (fig.9) that correspond to different frequencies

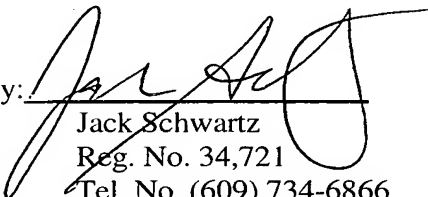
for a whole image. These sub-bands are then split into blocks (Col. 9, line 45-55) and the energy in each block is computed. "The spatial information is used to quantize all of the sub-bands to be encoded. For example, if a block were classified as a high energy block, then the corresponding block would be quantized using a finer quantizer in each of the coded sub-bands" (Col. 9, lines 63-67). However, this calculated resolution is for the whole block in the "sub-band". Unlike the present claimed invention, Hartung et al. are not directed to determining which pixels correspond to regions that are perceptually more relevant. Rather, Hartung et al. calculate the energy in each block to determine the resolution. Consequently, this improvement in the resolution made by Hartung et al. can only be made at a block level wherein all the pixels of the block will have the same resolution. Therefore, one skilled in the art would not calculate a block by allocating different resolutions to the pixels belonging to the block. Therefore, Hartung et al., when taken alone or in combination with Pearlstein et al., neither disclose nor suggest that "mixed blocks straddling two zones of different resolutions are detected, and the zone corresponding to each pixel of these mixed blocks is determined so as to construct mixed blocks by allocating the resolution of this specified zone to this pixel to get constructed mixed blocks and to code said constructed mixed blocks" as claimed in claim 1 of the present invention.

As claims 11-17 are dependant on Independent claim 1 it is respectfully submitted that these claims are allowable for the same reasons as mentioned above regarding claim 1. In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Hartung et al., when taken alone or in combination with Pearlstein et al., showing the above discussed features. It is thus further respectfully submitted that claims 11-17 are not anticipated by Hartung et al. It is thus, further respectfully submitted that this rejection is satisfied and should be withdrawn.

The applicant respectfully submits, in view of the above arguments, that the all arguments made by the Examiner have been addressed and this rejection should be withdrawn. Therefore, the applicant respectfully submits that the present claimed invention is patentable.

No additional fee beyond the extension fee is believed due. However, if an additional fee is due, please charge the additional fee to Deposit Account 07-0832.

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Karen Schleich